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Docket No. 529,44608X00

Serial No. 10/527,161

Office Action dated December 28, 2006

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) An X-ray generating device comprising:

a non-resonant inverter for converting a voltage supplied from a DC power supply into a high-frequency AC voltage;

a high voltage transformer for boosting an AC power voltage including a plurality of primary windings connected in parallel to an AC power supply, the non-resonant inverter, at least one iron core, and a plurality of secondary windings respectively corresponding to the primary windings;

a plurality of high voltage rectifier circuits which are connected to outputs of the plurality of secondary windings of the high voltage transformer and converts the outputs into DC outputs, connects the DC in series, and grounds the midpoints of the series connection at a neutral point; and

an X-ray tube receiving a predetermined tube voltage through a cathode and an anode thereof, respectively connected to a DC output negative terminal and a DC output positive terminal on both ends of the plurality of high voltage rectifier circuits, wherein

a ratio obtained by dividing a plurality of values of currents respectively flowing through the plurality of primary windings each other at an identical time point is always kept at a predetermined ratio while the tube voltage is applied

wherein a waveform phase difference removing means is provided to remove a difference in waveform and phase occurring between the plural currents

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respectively flowing through the plural windings and to remove an unbalanced voltage.

2. (Canceled)

3. (Currently Amended) An X-ray generating device according to claim 2, wherein the waveform phase difference removing means has a hollowed core made of a ferromagnetic material of large permeability, and a part of plural conductors connecting the primary windings and the ~~AC power supply~~ non-resonant inverter passes through or turns around the hollow, and differences in waveforms and phases are removed by mutually canceling magnetic fields generated due to the primary winding currents.

4. (Original) An X-ray generating device according to claim 3, wherein the core has a high AL value, and gives an inductance equivalent to or larger than a leakage inductance of the high voltage transformer.

5. (Original) An X-ray generating device according to claim 1, wherein the AC power supply includes a DC power supply and an inverter for converting a current from the DC power supply into a high-frequency AC current.

6. (Original) An X-ray generating device according to claim 1, wherein the X-ray tube is a metal X-ray tube having a metallic part in a substantial center and the metallic part is connected to the grounded neutral point.

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7. (Original) An X-ray generating device according to claim 6, wherein the predetermined ratio is smaller than 1.

8. (Currently Amended) An X-ray generating device according to claim 7 further comprising: current addition means formed by commonly winding two or more conductors among ~~the~~ a plurality of conductors respectively connecting the plural primary windings and the AC power supply around a ferromagnetic core having a large permeability to keep the ratio between the plural current values are kept at a predetermined ratio.

9. (Original) An X-ray generating device according to claim 8, wherein the core has a high AL value and gives an inductance equivalent to or larger than a leakage inductance of the high voltage transformer.

10. (Original) An X-ray generating device according to claim 6, further comprising:

waveform phase difference removing means which lowers the predetermined ratio to be smaller than 1 and removes differences in waveform and phase generated between the plural currents respectively flowing through the plurality of primary windings; and

current addition means formed by commonly winding two or more conductors among the plural conductors respectively connecting the plurality of primary windings and the AC power supply around the ferromagnetic core having a large permeability, wherein

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the ratio between the plural current values is kept at a predetermined ratio by the waveform phase difference removing means and the current addition means.

11. (Original) An X-ray generating device according to claim 10, wherein the waveform phase difference removing means has a hollowed core made of ferromagnetic material of a large permeability, a part of the plural conductors passes through or turns around the hollow, and the differences in waveforms and phases are removed by mutually canceling magnetic fields generated by the primary current.

12. (Original) An X-ray generating device according to claim 11, wherein the two cores have a high AL value and give an inductance equivalent to or larger than a leakage inductance of the high voltage transformer.

13. (Original) An X-ray CT apparatus comprising:
an X-ray generating device according to claim 1;
an X-ray detector arranged opposite to the X-ray tube;
a rotative circular plate holding the X-ray tube and the X-ray detector, and
being driven to rotate around an object to be examined; and
image reconstructing means for reconstructing a tomogram of the object as an image on the basis of the strength of X-rays detected by the X-ray detector.

14. (Canceled)

15. (Canceled)

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16. (Original) An X-ray CT apparatus comprising:
- an X-ray generating device according to claim 10;
 - an X-ray detector arranged opposite to the X-ray tube;
 - a rotative circular plate for holding the X-ray tube and the X-ray detector, and being driven to rotate around an object to be examined; and
 - image reconstructing means for reconstructing a tomogram of the object as an image on the basis of the strength of X-rays detected by the X-ray detector.
17. (New) An X-ray generating device according to claim 11, wherein a ratio obtained by dividing a plurality of values of currents respectively flowing through the plurality of primary windings at an identical time point is always kept at a predetermined ratio while the tube voltage is applied.
18. (New) An X-ray generating device according to claim 17, wherein the predetermined ratio is 1.
19. (New) An X-ray generating device according to claim 3, wherein the part of plural conductors comprise:
- a first conductor which connects one output terminal of the non-resonant inverter and one input terminal of a first primary winding;
 - a second conductor which connects another output terminal of the non-resonant inverter and one input terminal of a second primary winding having a different potential level as the input terminal of the first primary winding, and the first conductor and the second conductor are bundled and pass through or turn around the hollow.

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21. (New) An X-ray generating device according to claim 10, wherein the part of plural conductors comprise:

a first conductor which connects one output terminal of the non-resonant inverter and one input terminal of a first primary winding;

a second conductor which connects another output terminal of the non-resonant inverter and one input terminal of a second primary winding having a different potential level as the input terminal of the first primary windings, and the second conductor is divided into two conductors and each of the two conductors is respectively bundled to the first conductor and pass through or turn around two hollows respectively.